UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/678,297	10/03/2000	HIROSHI KABURAGI	862.C2023	5739

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EXAMINER
PHAM, THIERRY L

ART UNIT	PAPER NUMBER
2624	

DATE MAILED: 12/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

		Application No.	Applicant(s)
		09/678,297	KABURAGI ET AL.
Office Action Summary		Examiner	Art Unit	
		Thierry L Pham	2624	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>amendment filed on 8/3/04</u>.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-18</u> is/are pending in the application.

  4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-18</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

  a)☐ All b)☐ Some * c)☐ None of:

  1.☐ Certified copies of the priority documents have been received.

  2.☐ Certified copies of the priority documents have been received in Application No. _____.

  3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
  application from the International Bureau (PCT Rule 17.2(a)).

  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date <u>8/3/04</u>.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____ .

DETAILED ACTION

1.   This action is responsive to the following communication: an Amendment filed on 8/3/04.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3.   Claims 1-6, 9-11, 14-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Terashima et al (U.S. 6538762).

Regarding claim 1, Terashima discloses an image processing apparatus (host computer, fig. 3) having input means (input I/F for receiving plurality of different types of image data, fig. 8) for inputting, pixel by pixel, a multilevel image containing gray-scale information, and binarization means for binarizing the multilevel image, which has been input by the input means, to a binary image (host computer includes printer control circuit comprising color conversion/halftoning section for converting multilevel image into binary image, col. 7, lines 65-67), said apparatus comprising:

● communication means (a cable connecting from host computer to printer, fig. 3) for communicating with an external image output device via a network (fig. 3);

● characteristic-information storage means (printer control unit 5 includes memory device 41, fig. 5) for receiving characteristics information concerning dot reproducibility from (printer control unit 5 for receiving printer's parameters that control printing mechanism of the printer, i.e., print head characteristics, inkjet printer dot parameters, col. 2, lines 58-60 and col. 6, lines 16-38 and col. 9, lines 30-65) the external image output device (i.e. inkjet printer 9 for forming

dots using print-head nozzles, fig. 3) by said communication means and storing the characteristic information;

● connectivity control means (printer control unit 5, fig. 3) for controlling connectivity (printer control unit 5 of fig. 3 includes parameter analysis/command generation section 45 for controlling backend parameters such as horizontal and vertical resolutions, numbers of dots in one raster line of raster image, and etc., col. 6, lines 30-38, inherently, plurality of dots are interconnected (dot connectivity) to form an raster/binary image) of the binary image which is binarized by the binarization means, based upon the characteristic information stored by said characteristic-information parameter (i.e. parameters that control printing mechanism of the printers, col. 6, lines 16-38) storage means; and

● transmitting means (a cable connecting from host computer to printer, fig. 3) for transmitting the binary image in which the dot connectivity (i.e. numbers of dots are interconnected (connectivity) to form an raster/binary image) has been controlled by said connectivity control means, to the external image output device (printer, fig. 3) via said communication means.

Regarding claim 2, the apparatus according to claim 1, wherein said characteristic-information storage means stores correlation (printer control unit can convert images through use of an optimum method according to parameters compliant to the type of printer, col. 2, lines 58-61) between a parameter which decides dot connectivity in a binary image binarized by said binarization means and the characteristic information of the image output device (i.e., characteristics of a print head of an ink-jet printer, col. 6, lines 15-39).

Regarding claims 3-5, please see rejection rationale/basis as described in claims 1-2 above.

Regarding claim 6, Terashima an image processing apparatus (host computer, fig. 3) having input means (input I/F, fig. 8) for inputting, pixel by pixel, a multilevel image containing gray-scale information, and binarization means (color conversion/halftoning section of fig. 5 for converting multilevel image into binary image, col. 7, lines 65-67) for binarizing the multilevel image, which has been input by the input means, to a binary image, said apparatus comprising:

- reception means (a cable connecting from host computer to printer, fig. 3) for receiving a parameter (i.e. parameters that control printing mechanism of the printers including dot parameters, col. 6, lines 16-38) with an external image output device via a network (fig. 3), said parameter controlling dot connectivity of a binary image (printer control unit of fig. 3 controls backend parameters such as horizontal and vertical resolutions, numbers of dots in one raster line of raster image, and etc., col. 6, lines 30-38, numbers of dots are interconnected to form a raster/binary image) binarized by the binarizatoin means;

- connectivity control means (printer control unit of fig. 3 controls backend parameters such as horizontal and vertical resolutions, numbers of dots in one raster line of raster image, and etc., col. 6, lines 30-38, numbers of dots are interconnected to form a raster/binary image) for controlling dot connectivity in the binary image when binarization is performed based upon a the parameter received of an output destination (i.e. parameters that control printing mechanism of the printers, col. 6, lines 16-38) obtained by said reception means; and

- transmitting means (a cable connecting from host computer to printer, fig. 3) for transmitting the binary image, in which the dot connectivity of which has been controlled by said connectivity control means, to the external image output device.

Regarding claims 9-10: Claims 9-10 are the method claims corresponding to the apparatus claim 1. The methods are inherent and included by the operation of the apparatus. Please see claims rejection basis/rationale as described in claim 1 above.

Regarding claim 11: Claim 11 are the methods corresponding to the apparatus in claim 6. The methods are inherent and included by the operation of the apparatus. Please see claims rejection basis/rationale as described in claim 6 above.

Claims 14-15 correspond to claim 1 and 3 (respectively) except computer readable memory medium for storing program is claimed rather that printing system or data output apparatus. All computers have some type of computer readable memory medium (DRAM, fig. 7) for storing computer programs, hence claims 14-15 would be rejected using the same rationale as in claims 1 and 3 (respectively).

Claim 16 corresponds to claim 6 except computer readable memory medium for storing program is claimed rather that printing system or data output apparatus. All computers have some type of computer readable memory medium (DRAM, fig. 7) for storing computer programs, hence claim 16 would be rejected using the same rationale as in claim 6.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 7-8, 12-13, and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terashima et al (U.S. 6538762), and in view of Wang (U.S. 5854882).

Regarding claim 7, Terashim discloses an image processing apparatus host computer, fig. 3) having input means (input I/F, fig. 8) for inputting, pixel by pixel, a multilevel image containing gray-scale information, and binarization means (color conversion/halftoning section of fig. 5 for converting multilevel image into binary image, col. 7, lines 65-67) for binarizing the multilevel image, which has been input by the input means, to a binary image, said apparatus comprising:

• communication means (a cable connecting from host computer to printer, fig. 3) for communicating with an external image output device via a network;

• connectivity control means (printer control unit of fig. 3 controls backend parameters such as horizontal and vertical resolutions, numbers of dots in one raster line of raster image, and etc., col. 6, lines 30-38, inherently, plurality of dots are interconnected (dots connectivity) to form an raster/binary image) for controlling dot connectivity of a binary image, when binarization is performed;

• transmitting means (a cable connecting from host computer to printer, fig. 3) for transmitting the binary image, in which the dot connectivity of which has been controlled by the connectivity control means, to the external image output device via said communication means.

However, Terashima does not explicitly disclose an image processing apparatus comprising: a reading means for reading a test pattern; a parameter calculation means for calculating a parameter, in conformity with the test pattern read by said reading means;

Wang, in the same field of endeavor for image processing apparatus, teaches (1) a reading means (optical color measurement of test patterns, figs. 8 & 13) for reading a test pattern (printed color test patterns by color printer, figs. 8 & 13, col. 8, lines 35-42) (2) a parameter calculation means (dithering computing unit of fig. 13 for calculating a dot overlap information of binary image, col. 14, lines 16-52) for calculating a parameter in conformity with results obtained from said reading means.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Terashima as per teachings of Wang because of a following reason: (1) to determine if the correct print quality (i.e. connectivity of dots and/or dots overlap) was printed by the printer via performing the test patterns.

Therefore, it would have been obvious to combine Terashima with Wang to obtain the invention as specified in claim 7.

Regarding claim 8, Wang further teaches the apparatus according to claim 7, wherein the test pattern is for detecting dot connectivity is a test pattern that has been output by the external image output device (test patterns are printed by the digital color printer, fig. 13).

Regarding claims 12-13: Claims 12-13 are the methods corresponding to the apparatus in claim 7-8 (respectively). The methods are included by the operation of the apparatus. Please see claims rejection basis/rationale as described in claims 6-7 above.

Claims 17-18 correspond to claims 7-8 (respectively) except computer readable memory medium for storing program is claimed rather that printing system or data output apparatus. All computers have some type of computer readable memory medium (DRAM, fig. 7 of Terashima)

for storing computer programs, hence claims 17-18 would be rejected using the same rationale as in claims 7-8 (respectively).

Response to Arguments

● Objection to Title have been withdrawn.

Applicant's arguments filed 8/3/04 have been fully considered but they are not persuasive.

● Regarding claims 1-18, the applicants argued the cited prior art does not teach "concerning dot reproducibility of output device" and connectivity control means for controlling "dot connectivity".

In Response, the examiner will note that Applicants are arguing subject matter not previously claimed in claims 1-18. Nowhere in previously claims 1-18 that applicants recite the nature of "concerning dot reproducibility" and "dot connectivity". However, Terashima explicitly teaches a host computer includes a printer control unit 5 for controlling the output device (i.e. inkjet printer 9). Printer control unit 5 comprising parameter analysis/command generation unit 45 for detecting/analyzing parameters of output device (inkjet printer), and such parameters include printer's engine characteristics, dots formation, and etc. Inherently, since printer 9 is an inkjet printer, therefore, dot formations are performed using inkjet nozzles (col. 9, lines 30-45). Plurality of dots are interconnected ("dot connectivity") to form one raster line (col. 6, lines 15-38), and such formation is controlled using printer control unit 5 for controlling "dots connectivity".

● In addition, Wang also teaches "dot connectivity" as shown in figs. 3-8.

Conclusion

6.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- U.S. 5696853 to Kawana, teaches a printer control unit for controlling an inkjet printers, wherein dots connectivity is performed.

- U.S. 6031627 to Kakutani, teaches a printer control unit for controlling an inkjet printer, wherein dots connectivity is performed.

7.   **THIS ACTION IS MADE FINAL.**   Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).
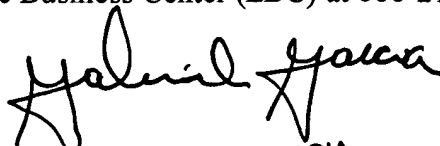
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thierry L Pham whose telephone number is (703) 305-1897. The examiner can normally be reached on M-F (9:30 AM - 6:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K Moore can be reached on (703)308-7452. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thierry L. Pham

GABRIEL GARCIA
PRIMARY EXAMINER